

Abstract

A GaN semiconductor device with improved heat resistance of the Schottky junction electrode and excellent power performance and reliability is provided. In this semiconductor device having a Schottky gate electrode 17 which is in contact with an AlGaN electron supplying layer 14, a gate electrode 17 comprises a laminated structure wherein a first metal layer 171 formed of any of Ni, Pt and Pd, a second metal layer 172 formed of any of Mo, Pt, W, Ti, Ta, MoSi, PtSi, WSi, TiSi, TaSi, MoN, WN, TiN and TaN, and a third metal layer formed of any of Au, Cu, Al and Pt. Since the second metal layer comprises a metal material having a high melting point, it works as a barrier to the interdiffusion between the first metal layer and the third metal layer, and the deterioration of the gate characteristics caused by high temperature operation is suppressed. Since the first metal layer contacting the AlGaN electron supplying layer 14 has a high work function, the Schottky barrier is high, and superior Schottky contact is obtained.